COMMONWEALTH OF AUSTRALIA

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Warning

CHARLES DARWIN UNIVERSITY

Family Name	
Given Names	
Student Number	
Teaching Period	Semester 1, 2016

FINAL EXAMINATION	**DURATION**
MLS100 – Medical Laboratory Science	Reading Time: **10** minutes Writing Time: **120** minutes

INSTRUCTIONS TO CANDIDATES

Section A: Multiple Choice Questions: Total No of Marks for this section: 48
This section should be answered on the Answer Sheet provided. Please ensure that your name and student number have been written on the Answer sheet and place in the completed answer Booklet. Marks for each question are indicated. Suggested Time allocation for Section A: 50 mins

Section B: Short Answer Questions. Total No of Marks for this section: 57
This section should be answered in the Answer Booklet provided.
Marks for each question are indicated. Suggested Time allocation for Section B: 70 mins

EXAM CONDITIONS

You may begin writing from the commencement of the examination session. The reading time indicated above is provided as a guide only.

This is a CLOSED BOOK examination

Any non-programmable calculator is permitted

No handwritten notes are permitted

No dictionaries are permitted

ADDITIONAL AUTHORISED MATERIALS	**EXAMINATION MATERIALS TO BE SUPPLIED**
No additional printed material is permitted	1 x 20 Page Book 1 x Scrap Paper Faculty/School Multiple Choice Answer Sheet Graph Paper

THIS EXAMINATION IS PRINTED DOUBLE-SIDED.

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Section A

Multiple Choice Questions

Total No of Marks for this section: 48

This section should be answered on the Answer Sheet provided. Please ensure that your name and student number have been written on the Answer sheet and place in the completed answer Booklet.

Marks for each question are indicated. Suggested Time allocation for Section A: 50 mins

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Section B

Short Answer Questions

Total No of Marks for this section: 57

This section should be answered in the Answer Booklet provided.

Marks for each question are indicated. Suggested Time allocation for Section B: 70 mins

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Question 1

Name five (5) key laboratory safety requirements and explain the importance of each.

(Marks: 10)

Question 2

When is immersion oil used when viewing a slide? What is the function of the immersion oil?

(Marks: 3)

Question 3

What are the similarities and differences between 'standard practices' and 'universal precautions'?

(Marks: 4)

Question 4

Solutions of proteins and nucleic acids are colourless. Does this mean that they do not absorb any light? Explain why.

(Marks: 2)

Question 5

Fill in the table regarding the differences between volumetric and graduated pipettes, and list an advantage and disadvantage of each.

	Volumetric	**Graduated**
Draw a picture		
Use		
Accuracy		
Tolerance		
Advantage		
Disadvantage		

(Marks: 6)

Question 6

Four students each completed a laboratory exercise in which they weigh a standard known to be 5.0000g. The values obtained (in grams) are shown below. Comment on the accuracy and precision of each student's results.

Juan	**Chris**	**Liana**	**Mel**
4.9986	5.0021	5.0001	5.1021
5.0020	5.0020	4.9998	4.9987
5.0007	5.0021	4.9999	5.0003
4.9995	5.0022	4.9998	4.9977

(Marks: 8)

Question 7

Define the following terms:

(a) Anisocytosis

(b) Poikilocytosis

(c) Hypochromic

(d) Rouleaux

(e) Leukopenia

(Marks: 5)

Question 8

The following results were obtained from a 54 year old women after surgery for ovarian cancer.

(a) Can you highlight any abnormalities observed?

(b) Can you suggest a reason for these results?

Test	Value	Reference Range
Urea	2.0 mmol/L	2.5 – 6.6
Sodium	147 mmol/L	132 – 144
Potassium	2.0 mmol/L	3.3 – 4.7
Bicarbonate	10.0 mmol/L	24 – 30
Bilirubin	7.0 μmol/L	2 – 17
ALT	11.0 U/L	10 – 40
ALK Phos	35.0 U/L	40 – 100
Total protein	42.0 g/L	60 – 80
Calcium	1.6 mmol/L	2.1 – 2.6

(Marks: 4)

Question 9

Explain the importance of the dehydration step in tissue processing.

(Marks: 3)

Question 10

A patient visits the doctor suspecting they have a urinary tract infection (UTI). The doctor requests a sample be sent to the laboratory for testing. What are the crucial steps involved in this process before the sample can be tested? What is the most likely organisms and would a blood test be required and why?

(Marks: 6)

Question 11

Explain how you would prepare a 1/5, 1/50, and 1/250 dilution of a blood sample, given that you only have 1mL of the sample.

(Marks: 6)

…….end of the paper…….